

REVIEW

Tending Fire: Coping with America's Wildland Fires. By STEPHEN J. PYNE. 2001. Island Press, Washington D.C. 238 pp. \$25.00. ISBN 1-55963-565-7.

In his most recent book, renowned fire historian Stephen J. Pyne departs from his previous efforts that focused primarily on the culture of fire and turns his attention instead towards fire policy. The shift seems to be a bit uncomfortable for Pyne as he utilizes the same writing and research style that helped make so many of his past works, especially his 1995 "World of Fire," such a pleasure to read. Formulating wildfire policy and developing appropriate fire management strategies require a different approach to data verification and interpretation than does delving into cultural history. Consequently, there are sections in the book where literary hyperbole clashes with the need for a more analytical perspective. But Pyne's efforts are ultimately successful because he is able to offer many valuable and compelling viewpoints that need to be seriously discussed by not only the fire community, but scientific and educational institutions as well.

Throughout, Pyne describes a creative and more descriptive way to view fire than most of us have done in the past. It is not just an extreme event on the periphery of biology, but rather an integral part of life. Such a perspective will hopefully stimulate the inclusion of fire in biology texts as not only an important evolutionary force, but also a crucial element of the biotic environment. Pyne's basic premise is that fire needs to be defined primarily as a "phenomenon of the biosphere," because "fire's biological character is fundamental, for without life, fire would not exist." Such an ecological perspective is now being recognized by most land managers as they try to figure out how to safely return fire to landscapes that have been damaged by improper logging and grazing practices as well as overly ambitious fire suppression efforts. But Pyne makes it clear that a one-size-fits-all approach to wildfire management is not appropriate. He states that, "America does not, in truth, have a fire problem or a fire story. It has many fire problems...each of which requires different treatments." This contrasts with a more anthropogenic perspective that views the fire problem not as a fire problem, but as a people problem (Zedler 2005).

As is the case with most books dealing with American wildfires, California ecosystems, especially chaparral, are poorly represented and understood. This is unfortunate because 12 of the nation's top 15 most destructive wildfires have occurred in California. This lack of attention leads one to think fire suppression in southern California over the past

century has led to a steady reduction of acres burned. It has not (Keeley and Fotheringham 2003). Although Pyne makes it clear multiple times that fire management techniques transfer poorly from one system to another, the reader will probably come away thinking dense, old-growth chaparral is "unhealthy" and needs to burn in the same way some overstocked Ponderosa pine forests do. This misconception unfortunately dominates public discourse and many fire management plans despite the lack of corroborating scientific evidence. The few remaining old-growth chaparral stands in California are in fact beautiful, dynamic communities that have been protected rather than created by successful fire suppression. This is important for agencies to understand in order to prevent these valuable natural resources from falling victim to overzealous vegetation treatments. Large tracts of chaparral have already been type-converted to alien grassland by increased fire frequency due to "range management" practices, accidental ignition, and arson. Introducing more fire into the system will only accelerate the process. The only place where prescribed fire and other vegetation management techniques make sense in California chaparral is in a strategic manner directly along the wildland/urban interface where homes exist next to wildlands.

In discussing our past relationship to fire, Pyne gives a bit too much credit to humans as agents of evolutionary change. While it is safe to assume early humans knew how to use fire to manipulate their environment, the extent and frequency is unknown. Humans have changed fire regimes wherever they have gone to be sure. However, it is impossible to separate natural from anthropogenic fires in prehistoric times. The role of humans in shaping the development of fire adapted species or ecosystems was likely minimal, especially in Australia and the Americas where *Homo sapiens* are recent arrivals.

The United States Forest Service, and the firefighters who work for it, are usually the ones singled out for causing the wildfire problems we see today. After the Great Fires of 1910, where three million acres burned in Idaho and Montana and 84 people died, the federal government embarked upon a major effort to suppress all fire as soon as possible in order to prevent such a disaster from occurring again. Conventional wisdom claims this effort was shortsighted and has led to excessive fuel loads and the growth of so-called dog hair forests. If we had only listened, the thinking continues, to the earliest fire ecologists, such as Herbert Stoddard and Harold Biswell, the extreme fire risks we currently see would not exist. Pyne takes these assumptions head on and deals with them in a balanced manner, pointing out that fire suppression is

only one of many factors contributing to the current condition of our nation's wildlands. He mentions logging, grazing, road building, land use policy, and the invasion of non-native species ("exotic pyrophytes like cheatgrass that rapidly remake landscapes in ways that promote undesired fire regimes") as having important impacts as well. "It is the sum of all we have done and not done over the past century." Pyne also cautions there is not a one-to-one correspondence between aggressive suppression and uncontrollable fuels because too many variables are involved from "wind, drought, and browsers."

Although fuel is obviously important, the arrangement of that fuel and the environmental conditions under which it burns will determine whether or not the flames become unmanageable. For example, underappreciated by the general public, but well known to firefighters, are the dangers of grass fires. The speed and intensity in which flames can move through weedy fields has cost the lives of many. Last year, California Department of Forestry firefighter Eva Schicke was killed during a 30 second burn over when a sudden wind change pushed flames into the grassy area she was trying to cross in order to reach the assigned safety zone. "The reason ignitions of any sort spread. . . is that the environment can propagate them, and this is mostly a consequence of short-term weather. Regional-scale bouts of drying and wind associated with the arrival and breakdown of high-pressure systems, events ranging from five to fourteen days, underwrite most of North America's extensive burns and explosive runs." It is important here to make the distinction between climate and local weather. Recent climate changes have had major impacts on increasing both the size and frequency of fires by reducing fuel moisture over much of the Western United States. Local weather influenced by wildfire behavior is one of the primary variables responsible for fire spread and firefighter fatalities.

In hindsight, it is easy to say that the government's response to the Great Fires of 1910 failed to properly consider all the consequences of fire suppression. However, there were and remain good reasons to fight wildfires quickly and aggressively; they kill people and destroy property. It is therefore inherently unfair to criticize fire fighting agencies for not letting fires burn "naturally" through forests while at the same time expecting them to do all they can to protect lives and communities through fire suppression. This is especially true when considering how poor land planning has resulted in the creation of a virtually unmanageable wildland/urban interface. This forces fire fighting agencies to defend often indefensible structures, thereby limiting their ability to actually control fire spread.

One of the issues that play a significant role in how wild and prescribed fires are managed is liability. "If a fire misbehaved, the government could

be sued," Pyne writes. The Australian fire model is discussed whereby citizens take an active role in protecting their communities, maintaining defensible space, and understanding fire behavior, but Pyne correctly points out that reforming American liability law (and attitudes about liability) would be necessary to successfully emulate such an approach. Perhaps more importantly, Australian governments more closely link fire managers in the land planning process.

Pyne also discusses various approaches to change the existing structure of both the US Forest Service and local fire fighting agencies to make for a more effective system of wildfire management. His organizational recommendations are a bit fuzzy, but he does make a good case for maintaining the bond between fire and land management. This is important because solving the wildfire problem can not be reduced to "thinning" of fuels. "In fact," Pyne writes, "the issue isn't trees, or grass, or elk, or Hereford cattle, or red-cockaded woodpeckers. It's about all of them. It's about making all the parts of the fire management mesh. It's about synchronizing fire practices with the land."

But even if all the issues could be resolved, Pyne makes it clear that big fires are ultimately unpreventable. They will happen because we will never be able to control all the variables. Acknowledgment of such a fact needs to be incorporated into public policy and the public needs to accept and understand the limits of fire fighting agencies. "Even the best systems will lose 2 to 3 percent of starts under extreme conditions, and these fires may sweep widely."

With his signature writing style, Pyne makes a plea for change in how we deal with wildfire by highlighting the fascinating nature of the subject and discussing the traditional schism that separates the fire community from the academic—ologists. "Partly this reflects a failure of intellectuals to see anything significant in the flames," he writes. "But mostly the chasm betrays a failure of the fire community to appreciate how the flames that it finds so compelling in the field . . . illuminate fascinating questions . . ." Because in studying fire, he continues, ". . . the mind can experience a rush as stirring as anything wrought by a torching fire."

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